

**REMARKS**

Applicants wish to thank the Examiner for considering the present application. In the Office Action dated March 3, 2009, claims 1-26 are pending in the application. Applicants respectfully request the Examiner to reconsider the rejections.

**Rejection Under 35 U.S.C. § 103**

Claims 1, 8, 11, 13, 14, 18, and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bella (U.S. Pat. No. 5,765,098) in view of Sherman (U.S. Pat. No. 5,966,371) and further in view of Tanaka et al. (U.S. Pat. No. 6,157,685). Applicants respectfully traverse.

Claim 1 is directed to a communication system, such as the system generally illustrated in Figure 1 and described on pages 5-7. The communication system (10) (page 5, line 14) includes a stratospheric platform (18) (page 6, line 12 to page 7, line 6) having a payload controller and a phased array antenna (page 8, line 9) having a plurality of elements for generating a first beam and a second beam. A gateway station (20) in communication with said stratospheric platform (18) receives a first signal having a first beam having interference from the second beam therein and a second signal having a second beam having interference from the first beam therein. As is best shown in Figure 3 and the corresponding text on pages 9-10, the gateway station (20) includes a first subtracting block (74) for subtracting the second signal from the first signal to obtain the first beam and a second subtracting block (76) for subtracting the first signal from the second signal to obtain a second beam.

The Examiner cites the Bella reference for teaching a communication system that includes a stratospheric platform having a payload controller and a phased array antenna. The Examiner points to Fig. 1A for the satellite. Figure 1A includes a satellite SAT<sub>1</sub>. Other figures,

such as Figs. 2A and 2B include two satellites. There is no teaching or suggestion in the Bella reference for a stratospheric platform. A stratospheric platform is significantly different than a satellite. Satellites are located hundreds of miles above the Earth. A stratospheric platform, as mentioned in the present application on Page 6, flies at a significantly lower altitude such as above 60,000 feet. The stratospheric platform may be plane-like and flies in a small radius over a given spot on the Earth. Thus, there are significant differences between a stratospheric platform and a satellite. Therefore, the stratospheric platform is missing from the Bella reference.

The Examiner then cites the Sherman reference for a gateway station that receives a first signal having the first beam having interference from the second beam therein and receiving a second signal having the second beam having interference from the first beam therein. While it is true that the beam 15 includes interference from the various uplink beams, there is no teaching in the Sherman reference for a gateway station that communicates with a stratospheric platform as recited in Claim 1. Second tier interference is found from beams using the same code as the other beams which are received by the gateway receiver.

The Examiner then states that it would have been obvious for one of ordinary skill in the art at the time the invention was made to revive the teaching of Sherman into the system of Bella in order to reduce multipath fading in a bent-pipe satellite communication system. Lines 8-12 of the Sherman reference refer to a cross-reference to a related application for Sherman that is entitled, "Method and System for Reducing Multipath Fading in Bent-Pipe Satellite Communication Systems." It should be noted that multipath interference is different than the interference of two different signals as recited in the present application. Multipath fading or interference is obtained from the same signal and not different signals. Multipath fading is

described in the top of col. 2 in the Sherman reference. As is illustrated in Fig. 3 of the present disclosure, two different signals from different users are addressed. Multipath interference relates to the same signal taking different paths in being received by the user. Therefore, the Examiner's reasoning for the combination of Sherman and Bella does not meet the type of explicit analysis required by the Supreme Court in *KSR International vs. Teleflex*, 127 S.Ct. 1727 (2007). Absence such an expressed teaching or suggestion in the references, the explicit analysis and reasoning must be supplied by the Examiner. *Id.* In other words, the Examiner is required to provide explicit reasoning as to why one skilled in the art would be motivated to construct a combination. Therefore, Applicants respectfully request the Examiner to reconsider the combination of Bella and Sherman.

The Examiner states that the Bella and Sherman references do not specifically disclose a gateway station comprising a first subtracting block for subtracting the second signal from the first signal to obtain the first beam, the gateway station comprising a second subtracting block for subtracting the first signal from the second signal to obtain the second beam. The Applicants agree.

The Examiner then cites the Tanaka reference for teaching a gateway station comprising a first subtracting block for subtracting the second signal from the first signal to obtain the first beam.

First, the Tanaka reference also does not teach or suggest the use of a stratospheric platform. In fact, the words "stratospheric platform" and "phased array antenna" cannot be found anywhere in the Tanaka reference.

The Examiner points to Fig. 3, Fig. 6 and Fig. 7 for a gateway station that comprises a first subtracting block for subtracting the second signal from the first signal to obtain the first

beam. The Examiner also points to the title, the abstract, column 2, ll. 30-38 and column 4, line 15 to column 6, line 46. First, claim 1 specifically recites a gateway station in communication with the stratospheric platform. There is no teaching or suggestion in the Tanaka reference for employing the teachings in a gateway station. In fact, there is no teaching or suggestion for implementation of such a system in a stratospheric platform system.

In addition, the Tanaka reference is very different than that of the present disclosure. As mentioned above, the gateway station receives a first signal having the first beam having interference from the second beam therein and a second signal having the second beam having interference from the first beam therein. The gateway station also includes a first subtracting block for subtracting the second signal from the first signal to obtain the first beam. The gateway station also has a second subtracting block for subtracting the first signal from the second signal to obtain the second beam. The operation of the Tanaka reference includes interference canceller sections 14 which are illustrated in Fig. 1. However, the details of the interference canceller units are illustrated in Fig. 2 which is described in the background. The interference cancellers have an input signal that is de-spread and includes channel estimation units. The units are in a replica signal generator section in both Figs. 1 and 6. Figure 2 refers to finger sections that include de-spreaders, adders, channel estimation units, and multipliers. The finger section of the next stage consists of multipliers, adders and spreaders which carry out spread modulation to the signal. The spreaders are illustrated as reference numeral 59 in Fig. 2. The output of the interference canceller unit is an error signal. As can be seen in Fig. 6, numerous error signals corresponding to errors in each beam are grouped together and added at the addition block 15. The inverse of the sum of the errors is combined and weighted with another beam signal. When compared to claim 1, the differences are numerous. First, the

interference canceller units generate multiple error signals from the beam and are not the beam themselves. The error themselves are subtracted from the other beams.

One significantly distinguishing feature in the operation of the Tanaka reference is that not only is the error from other beams subtracted out, but errors from the particular beam are used. As illustrated in Fig. 6, four groups of error signals corresponding to four input beams are used at each of the addition blocks 17. Should the present teachings be applied to Tanaka, the result would be the present beam subtracting the present beam therefrom. That is, the teaching of the Tanaka reference would be destroyed when trying to apply the teachings of the present application thereto and vice versa. The error signal of Tanaka is, therefore, not the same as the second signal having the second beam having interference from the first beam therein. Even though subtracting is performed in the Tanaka reference, subtracting of a sum of a plurality of error signals is performed and not the actual or weighted signals therefrom. Thus, it is clear that the Tanaka reference is significantly different.

The Examiner's reasoning for performing the combination is to "provide a multistage interference canceller equipment and interference canceller method for use." The Examiner points to the Tanaka abstract for this logic. The Tanaka reference does show a multistage interference canceller. However, the teachings of the present disclosure as illustrated in Fig. 3 are not a multistage combination like that set forth in the Tanaka reference. Therefore, the Examiner's reasoning for Tanaka fails to rise to the explicit level of detail required by the *KSR* opinion.

Furthermore, the combination of the three references fails to teach a gateway station that receives two interfering signals from a phased-array antenna of a satellite. Therefore, even the

combination of references does not include all the elements of the claims. Applicants, therefore, respectfully request the Examiner to reconsider the rejection of claim 1.

With respect to claim 18, claim 18 specifically recites weights are associated with the first signal and the second signal. Although a weight is shown in the Tanaka reference, the weight is weighting the error signals and not the actual receipt signals. Therefore, the teachings of claim 18 are not taught or suggested in the Tanaka reference. Applicants respectfully request the Examiner to reconsider the rejection of claim 18.

Likewise, claims 8, 11, and 13 depend from claim 1 and are believed to be allowable for the same reasons set forth above.

Claim 14 is a method claim that has steps similar to the elements of claim 1. Therefore, claim 14 is also believed to be allowable for the same reasons set forth above. Claim 20 is an independent claim that is also believed to be allowable for at least the same reasons set forth above with respect to claim 1. Claim 20 also specifically recites user position files. Applicants can find no teaching or suggestion in either of the references for user position files. Furthermore, the Examiner does not state that user position files exist in the Sherman or Tanaka references. Therefore, Applicants respectfully submit that claim 20 is also allowable.

Claims 2-4, 15-17, 19 and 21-24 stand rejected under 35 U.S.C §103(a) as being unpatentable over Bella (U.S. Pat. No. 5,765,098) in view of Sherman (U.S. Pat. No. 5,966,371) and further in view of Tanaka et al. (U.S. Pat. No. 6,157,685) and Baier et al. (U.S. Pat. No. 6,519,477). Applicants respectfully traverse.

Claims 2-4, 15-17, 19 and 21-26 are believed to be allowable for at least the same reasons set forth above with respect to their independent claims. Each of these claims respectfully recites the user position files. The Examiner cites the Baier reference for user position files. The

Examiner cites files, weights WI-WH and column 8, lines 57-67 of the Baier reference for user position files. Applicants have reviewed this section in conjunction with Figure 4 and can find no teaching or suggestion for user position files or weights that are a function of user position files. It appears the weights are used for increasing the signal-to-noise ratios of the signals (column 8, line 62). The Examiner then states that the user position files are not defined. However, on page 10, lines 12-21 specifically recites that the relative position of the beams may be determined from the user position files. Based on the position of the beams, interference levels may be determined. The position of the beams, therefore, is found in the user position files. Applicants respectfully believe that this definition is clear. The Baier reference clearly does not teach or suggest anything resembling this. Therefore, claims 2-4, 15-17, 19 and 21-26 are believed to be allowable.

Claims 25 and 26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Sherman (U.S. Pat. No. 5,966,371) in view of Tanaka et al. (U.S. Pat. No. 6,157,685) and further in view of Baier et al. (U.S. Pat. No. 6,519,477). Applicants respectfully traverse.

Claims 25 and 26 are independent claims directed to a communication system that includes a stratospheric platform. The Examiner admits above that neither the Sherman nor the Tanaka reference includes a stratospheric platform. The Baier reference also does not teach a stratospheric platform. Both claims 25 and 26 include user position files. As mentioned above, the Baier reference also does not teach or suggest user position files as mentioned above. Furthermore, the Sherman and Tanaka references have the deficiencies set forth above. Therefore, because of these deficiencies, the combination of the references does not render claims 25 and 26 obvious.

Claims 5-7 stand rejected under 35 U.S.C §103(a) as being unpatentable over Bella (U.S. Pat. No. 5,765,098) in view of Sherman (U.S. Pat. No. 5,966,371) and further in view of Tanaka et al. (U.S. Pat. No. 6,157,685) and Rouffet et al. (U.S. Pat. No. 5,410,731). Applicants respectfully traverse.

Claims 5-7 recite specific details of the payload controller on the stratospheric platform. The Rouffet reference also does not teach or suggest a phased array antenna and thus the element control signals. Applicants specifically request the Examiner to reconsider this rejection.

Claims 9, 10 and 12 stand rejected under 35 U.S.C §103(a) as being unpatentable over Bella (U.S. Pat. No. 5,765,098) in view of Sherman (U.S. Pat. No. 5,966,371) and further in view of Tanaka et al. (U.S. Pat. No. 6,157,685) and Official notice. Applicants respectfully traverse.

Claims 9, 10 and 12 ultimately depend from claim 1 and recite further limitations. As mentioned above, neither of the three references teach or suggest a stratospheric platform. Therefore, Applicants respectfully request the Examiner to reconsider the rejection of claims 9, 10 and 12.



**CONCLUSION**

In light of the above remarks, Applicants submit that all rejections are now overcome. The application is now in condition for allowance and expeditious notice thereof is earnestly solicited. Should the Examiner have any questions or comments which would place the application in better condition for allowance, he is respectfully requested to call the undersigned attorney.

Should any fees be associated with this submission, the Commissioner is hereby authorized to charge Applicant's Deposit Account No. 50-0383; or, credit any over payment to this account.

Respectfully submitted,

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